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LOCOMOTIVE AND CAR REPAIR WORK LAGS IN USSR; DEFECTS NOTED IN DIESEL LOCOMOTIVES

LOCOMOTIVE, CAR REPAIR SHOPS CRITICIZED -- Moscow, Gudok, 1 Jul 51

In discussing the plan fulfillment of locomotive and car repair plants, the collegium of the Ministry of Transportation USSR noted, that on the whole, plants which repair rolling stock and which are a very important branch of the ministry's industry are still not coping with tasks assigned to it by the state. There is a particular lag in the production of freight and passenger cars, especially in the Kiev, Zhmerinka, and Otrozhka plants and the L'vov Plant imeni Voytovich. Also behind schedule are the Darnitsa, Popasnaya, and Tambov freight car plants and the Zaporozh'ye, Rostov, Michurinsk, Shevchenko, Velikiye Luki, Krasnoyarsk, and Stanislav locomotive plants. At the Zaporozh'ye, Krasnoyarsk, Shevchenko, and Otrozhka plants from 50 to 80 percent of the assembly shop workers were transferred to the "large-group" piecework system of work, which did not provide incentive for high productivity and lowered workers' responsibility for the quality of the work. The collegium also criticized the locomotive and car dismantling operations at the plants, particularly because good parts were not being reused.

Locomotives undergoing capital repair at the Krasnoyarsk, Tbilisi, Rostov, and L'vov plants are kept several times longer than called for in the norms, and car layover time has increased considerably at the Darnitsa, Popasnaya, Roslavl', and Otrozhka plants.

Serious complaints were leveled at the plants, and they were charged with excessive defects in the work. Locomotives and cars coming from the repair shops still had many defects, with the result that they repeatedly come in for repairs. A locomotive which had undergone capital repair at the L'vov Plant was refused by the engineer as it was found necessary to re-repair the tender trucks and replace both the water pipes of the injector and the spring hangers. It also had a number of other defects. The plant chiefs refused to perform the repairs, and only after the intervention of a special commission were the serious defects eliminated.

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All plants are not using the continuous method in repairing rolling stock. Of three plants working on the same type of repair and having the same technical equipment, one puts out 40 freight cars from one stall, another 19 cars, and a third only 11 cars, in the same length of time.

Tie impregnating plants were criticized for not properly utilizing machinery, particularly when unloading wood from the rolling stock. Also, the quality of the tie-impregnating work was very poor, and the Main Administration of the Timber Industry did not meet the plan for supplying the tie-impregnating plant with timber.

POINTS OUT DEFECTS IN DIESEL LOCOMOTIVES -- Moscow, Gudok, 25 Aug 51

During the postwar the Soviet diesel-locomotive-building industry developed rapidly. In this period, Soviet engineers produced the TE-1 and the articulated TE-2 diesels for railroad transport.

Although locomotive depots of the network have gained the necessary experience in operating the new diesels, they have not yet eliminated the "nonscheduled" repair which causes protracted layover of engines and considerable above-norm expenditures.

Experiences of the Chardzhou Locomotive Depot of the Askhkabad Railroad System has shown that most of the nonscheduled repair of diesels is caused by the following: chipping of the babbitt lining of the bearing bushings of the crankshaft; premature wearing of the piston rings; worn-out bearings; and leaking cylinder sleeves.

Investigation has shown that the high tin content of B-83 babbitt does not guarantee dependable operation of the lining for any length of time. To eliminate the nonscheduled repair caused by the chipping of the babbitt lining it is necessary to change gradually from the B-83 babbitt to the new B-2 alloy when the lining chips.

Long experience in the operation of diesel locomotives in the Chardzhou depot shows that the chipping of the bushing lining usually occurs in the fourth main bearing because it carries most of the load. These bearings should be changed at the first opportunity.

Nonscheduled repair and also locomotive layover in depots for planned repair are frequently caused by faulty piston rings which allow the passage of gases into the crankcase. Investigation shows that one of the main reasons for this is the low quality of the cast iron from which the rolls for the rings are cast. This cast iron usually proves to be too soft and porous. Centrifugal casting of high-quality rolls for the manufacture of piston rings should be undertaken as soon as possible.

It is absolutely necessary to check the piston rings of the D-50 diesel engine for hardness and resilience.

Some diesel engineers and enginemen think that the ring material should be softer than the material used in cylinder sleeves. Practice indicates, however, that such opinions are erroneous. The force of friction which acts on the rings and cylinder sleeve is undoubtedly equal, but if the force of friction is applied to a single surface of the ring and the sleeve, then it is clear that the ring should wear faster than the sleeve. Tests show that when piston rings are made of metal which is softer than that used in cylinder sleeves, the sleeves as well as the rings wear out more rapidly. That is why the rings and sleeves are matched in such a manner that they are of equal hardness, with a difference of not more than 10-15 units. This makes it possible to lengthen the time of service of the engine without repair.

Because the rings must be tested for hardness when they are changed at depots, the plants which produce them should accurately indicate their hardness by stamping the rings in the proper place.

The production of piston rings must be organized in a number of machine-building plants of the ministry. However, in an emergency, the manufacture of rings must be set up in one or two of the most technically equipped depots of each system having diesels.

When equipped with high-quality piston rings, the D-50 diesel should be able to operate a long time without needing replacements. At the Chardzhou Locomotive Depot one diesel went 103,000 kilometers, another 86,000, and a third 85,000 kilometers without having to change rings.

To decrease the layover time of diesels while undergoing repair, it is important to use interchangeable parts. A gradation according to sizes of piston rings and diameters of pistons must be worked out. A provisional gradation is used by the Ashkhabad System. This method must be made more definite and must be introduced as obligatory for all diesel depots of the network.

The uninterrupted operation of a diesel locomotive also depends a lot upon the effective operation of the antifriction bearings. The Chardzhou Depot has done much work toward lengthening the life of these bearings. Many special assembly and disassembly devices have been produced, and much attention has been given to improving the lubricating systems. However nonscheduled repair caused by bearing wear has not yet been made unnecessary. To eliminate this it is necessary, prior to installation, to calculate precisely the life of the bearing on the basis of norms which are based on the operation of diesels in advanced depots of the network.

It is also necessary to develop instruments for determining the radial thrust of roller bearings. At present, the serviceability of roller bearings is often gauged by sight because of the lack of measuring instruments.

Much trouble is caused by leakage in cylinder sleeves which results from holes at the seating of the collar in the block. Many such holes were found in the diesels produced earlier. They were repaired with annealed copper screws. This method made it impossible to determine satisfactorily whether or not the collars thus repaired would guarantee the uninterrupted operation of the cylinder for any length of time. More reliable methods for correcting these faults must be developed.

Defects such as the appearance of cracks in the cylinder block should also be mentioned. Welding the crack is usually a laborious method and frequently does not produce the desired results. The welding department of TsNII (Central Scientific-Research Institute) must help the diesel locomotive workers of the Ashkhabad System to introduce the highly efficient method of cold-welding cast iron.

The proper and accurate regulating of diesel locomotives after repair is very important, but not all depots are able to do this because of the lack of accurate measuring instruments.

Technical documents are often lacking at diesel depots. At present, diesel workers are waiting for "Instructions for Depot Repair of Diesel Locomotives," which will be of great value in solving problems in the operation and repair of diesel locomotives.

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